

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the matter of)	
)	
Implementation of Sections 309(j) and 337)	WT Docket No. 99-87
Of the Communications Act of 1934, as Amended)	
)	
Promotion of Spectrum Efficient)	RM-9332
Technologies on Certain Part 90)	
Frequencies)	

**PETITION TO DELAY INDEFINITELY IMPLEMENTATION OF SECTION 90.203(j)(5)
OF THE COMMISSION’S RULES**

Ritron, Inc., Carmel, IN (Ritron), a manufacturer of wireless products, hereby requests that the Commission delay indefinitely the implementation of Section 90.203(j)(5) of the Commission’s rules. In the latest order on the FCC’s narrowbanding mandate, FCC 10-119, it was ruled that after January, 2013, all new equipment authorizations for devices in the 150-174 MHz and 421-512 MHz bands support 6.25 kHz operation. Footnote 41 of that Order states that: “If 6.25 kHz standards still are not in place at that point [January 1, 2013], interested parties may request a further extension.” Ritron contends that standards are not in place and that other issues, detailed below, argue for delaying the implementation of mandatory 6.25 kHz certification by manufacturers.

No Standards for 6.25 kHz Operation Exist

The majority of the analog FM equipment currently operating on the PLMR bands are compatible with each other, even within a mix of product from different manufacturers. Even 12.5 kHz and 25 kHz equipment are somewhat compatible with each other. But at present, no one standard to support 6.25 kHz equipment exists. Ritron is not advocating that the Commission establish a standard for 6.25 kHz, but rather allow the marketplace itself to do so. Within the public safety arena standards are currently being developed that would offer equivalent channel efficiencies as two voice channels in one 12.5 kHz channel. Others have proposed alternate systems which should also meet the Commissions spectrum efficiency requirements. In the Business and Industrial sector of the market, two dominant standards have emerged, both incompatible with each other and proprietary, one advocated by Motorola and one by Kenwood and Icom. Also, the Motorola standard is somewhat compatible with the European-based DMR standard. Currently, a manufacturer can align oneself with either standard or make a product that supports both with a resultant increase in product cost. The manufacturers and users are reluctant enough to spend valuable resources and capital on what promises to be relatively expensive 6.25 kHz equipment. That reluctance is

sure to only increase if that equipment works only on proprietary systems. This is especially significant in the Industrial/Business sector which tends to be very cost sensitive and where, unlike the Public Safety arena, a consolidated standard may never exist.

Equipment to Support 6.25 kHz Channels is Not Cost Effective

The analog frequency modulation system used on the PLMR bands provides good performance with technology which is fairly inexpensive and easy to implement. When the Commission mandated that new equipment authorizations had to include provisions for 12.5 kHz operation some design changes were necessary to support the narrower bandwidth. The overall impact on the manufacturers has been fairly minimal. In fact, the greatest impact is supporting both 12.5 kHz and 25 kHz operation simultaneously during the transition period. Fortunately, radios which only support 12.5 kHz operation are somewhat compatible with 25 kHz equipment although the audio quality and depth of modulation suffer.

The situation with 6.25 kHz equipment is completely different. Efforts to simply reduce transmitter deviation are only successful if the audio bandwidth is reduced as well. The result is a signal which is essentially unusable for the transmission of voice. This implies that a move to digital technology is required. This technology will require digitization of the voice signal, bandwidth compression and coding, and circuitry to support digital modulation on the transmitting end as well as digital demodulation, decoding, decompression, and conversion to analog on the receiving end. This requires DSP-based equipment and/or dedicated DSP-based hardware. While this is definitely within the current state of the art and such equipment is readily available, the equipment tends to be expensive, especially since the most popular voice compressor/decompressor (vocoder) is proprietary and expensive for any but large manufacturers. This vocoder is in fact used in digital radios for Public Safety as well as the three most popular 6.25 kHz technologies mentioned above. To maintain any kind of over-the-air compatibility with other 6.25 kHz systems, this vocoder must be used. Unfortunately, the source code for use of this vocoder in common DSPs is multiple-hundreds of thousands of dollars or \$30+ in dedicated hardware. It is reasonable to expect that the technology to support 6.25 kHz operation will eventually become more cost effective as production quantities grow and the technology improves, although the cost of the vocoder may well remain constant. This is of particular concern for products that are not expected to be produced and used in large quantities such as many sold by Ritron. In the meantime, however, except for those selling into large radio systems, all manufacturers and buyers of PLMR equipment will be encumbered with costly technology for which they have little use, at least for quite some time. If the transition from 25 kHz to 12.5 kHz operation is any guide, this encumbrance will exist for quite a few years and the industry will suffer as a result. It would be unfortunate and imprudent to limit the two-way radio market to the largest manufacturers simply due to the cost of implementing 6.25 kHz.

Using the Equipment Authorization Process to Facilitate Refarming Has Been Largely Unsuccessful

In 1991, in order to reduce congestion in the private land mobile radio (PLMR) bands below 800 MHz, the Commission instituted their refarming plan. With time this plan was expected to create more spectrum space by moving to increasingly narrower bandwidth technologies. This in turn would allow more users in the same amount of spectrum space. To effect this changeover the Commission, through the equipment authorization process, began to require that narrow band technology be included in the product being certified. The first phase, which took place in 1996, required that new equipment authorizations include data to support operation on 12.5 kHz channels including meeting the appropriate emissions mask. The next phase, to take place in January, 2013, will require data on 6.25 kHz channel operation with a corresponding 6.25 kHz emissions mask. It was the Commission's hope that the availability of narrower band equipment would facilitate the transition to 12.5 kHz and eventually to 6.25 kHz channels.

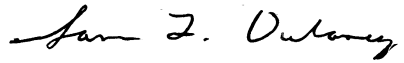
One problem with the Commission's plan is that other than eventually creating more channels, users of the PLMR bands enjoy no inherent advantages in going to a narrower bandwidth system and thus, are not motivated to do so. In fact, the transition from 25 kHz to 12.5 kHz channel operation causes a reduction in audio quality, not to mention the cost of purchasing new equipment. It has been seventeen years since the Commission required the authorization of 12.5 kHz equipment and the transition to 12.5 kHz channels has been long and arduous. In order to accelerate the transition, the Commission has had to issue a Report and Order mandating changeover dates. However, even the dates in that order have had to be postponed due to complaints from users and user groups.

Implementation of Section 90.203(j)(5) Should be Delayed until:

- 1) A real need has been established for PLMR frequencies beyond those created by the transition to 12.5 kHz channels. Going to 6.25 kHz channels simply to encourage new spectrum efficient technologies is not prudent. Given the negative impact to both the manufacturers and the users of 6.25 kHz compliant equipment, a real marketplace need should be established.
- 2) Technology exists which will allow the transition to occur in such a way that the benefits of the change to 6.25 kHz channels outweigh the associated R&D, manufacturing, and product costs, including the cost of the vocoder technology.
- 3) Some type of standard has emerged which uses a more cost-effective vocoder than the current, most-popular offering.

We trust that the Commission will find these points compelling and delay implementation of Section 90.203(j)(5).

Respectfully submitted,

A handwritten signature in black ink, reading "Sam L. Dulaney". The signature is written in a cursive, flowing style.

Sam L. Dulaney

Chief Engineer

Ritron, Inc.